European Medicines Agency Validates BioMarin's Marketing Authorization Application for Valoctocogene Roxaparvovec to Treat Severe Hemophilia A

Potential 1st Gene Therapy in Europe for Treatment of Hemophilia A

CHMP Opinion Anticipated in 1H 2022

SAN RAFAEL, Calif., July 15, 2021 /PRNewswire/ -- BioMarin Pharmaceutical Inc. (NASDAQ: BMRN) announced today that the European Medicines Agency (EMA) validated the Company's Marketing Authorization Application (MAA) for its investigational gene therapy, valoctocogene roxaparvovec, for adults with severe hemophilia A. With today's validation the MAA review can now commence. A CHMP opinion is anticipated in the first half of 2022.

The submission includes safety and efficacy data from the 134 subjects enrolled in the Phase 3 GENEr8-1 study, all of whom have been followed for at least one year after treatment with valoctocogene roxaparvovec, as well as four and three years of follow-up from the 6e13 vg/kg and 4e13 vg/kg dose cohorts, respectively, in the ongoing Phase 1/2 dose escalation study.

"We look forward to working with the agency as it evaluates the robust data set in this application, which we believe address the requests made during the prior MAA review. This pivotal study demonstrated superiority of valoctocogene roxaparvovec compared to the standard of care, prophylactic Factor VIII replacement," said Hank Fuchs, M.D., President, Worldwide Research and Development at BioMarin. "The extensive data set for valoctocogene roxaparvovec is supported by decades of scientific and clinical research in the field of gene therapy. We continue to contribute to the body of scientific knowledge and will be sharing results from our Phase 1/2 and Phase 3 studies with the community at the International Society on Thrombosis and Haemostasis (ISTH) 2021 Congress next week. We believe that this gene therapy has the potential to fulfill the unmet medical needs in the community."

In May 2021, the EMA granted the Company's request for accelerated assessment of the application. Applications are eligible for accelerated assessment if the CHMP and CAT decide the product is of major interest for public health, particularly from the point of view of therapeutic innovation. Evaluating a MAA under the EMA centralized procedure can take up to 210 days, not counting clock stops when applicants are requested to provide additional information. On request, the CHMP and CAT can reduce the time frame to 150 days if the applicant provides sufficient justification for an accelerated

assessment, although an application initially designated for accelerated assessment can revert to the standard procedure during the review for a variety of reasons. The decision to grant accelerated assessment has no impact on the eventual CHMP and CAT opinion on whether a marketing authorization should be granted.

Regulatory Status

BioMarin resubmitted a Marketing Authorization Application (MAA) to the European Medicines Agency (EMA) on June 25, 2021. In the United States, BioMarin intends to submit two-year follow-up safety and efficacy data on all study participants from the Phase 3 GENEr8-1 study to support the benefit/risk assessment of valoctocogene roxaparvovec, as previously requested by the Food and Drug Administration (FDA). BioMarin is targeting a Biologics License Application (BLA) resubmission in the second quarter of 2022, assuming favorable study results, followed by an expected six-month review by the FDA.

The FDA granted Regenerative Medicine Advanced Therapy (RMAT) designation to valoctocogene roxaparvovec in March 2021. RMAT is an expedited program intended to facilitate development and review of regenerative medicine therapies, such as valoctocogene roxaparvovec, that are intended to address an unmet medical need in patients with serious conditions. The RMAT designation is complementary to Breakthrough Therapy Designation, which the Company received in 2017.

In addition to the RMAT Designation and Breakthrough Therapy Designation, BioMarin's valoctocogene roxaparvovec also has received orphan drug designation from the FDA and EMA for the treatment of severe hemophilia A. The Orphan Drug Designation program is intended to advance the evaluation and development of products that demonstrate promise for the diagnosis and/or treatment of rare diseases or conditions.

Robust Clinical Program

BioMarin has multiple clinical studies underway in its comprehensive gene therapy program for the treatment of hemophilia A. In addition to the global Phase 3 study GENEr8-1 and the ongoing Phase 1/2 dose escalation study, the Company is actively enrolling participants in a Phase 3b, single arm, open-label study to evaluate the efficacy and safety of valoctocogene roxaparvovec at a dose of 6e13 vg/kg with prophylactic corticosteroids in people with hemophilia A. The Company is also running a Phase 1/2 Study with the 6e13 vg/kg dose of valoctocogene roxaparvovec in people with hemophilia A with pre-existing AAV5 antibodies, as well as another Phase 1/2 Study with the 6e13

vg/kg dose of valoctocogene roxaparvovec in people with hemophilia A with active or prior FVIII inhibitors.

About Hemophilia A

People living with hemophilia A lack sufficient functioning Factor VIII protein to help their blood clot and are at risk for painful and/or potentially life-threatening bleeds from even modest injuries. Additionally, people with the most severe form of hemophilia A (FVIII levels <1%) often experience painful, spontaneous bleeds into their muscles or joints. Individuals with the most severe form of hemophilia A make up approximately 45 to 50 percent of the hemophilia A population. People with hemophilia A with moderate (FVIII 1-5%) or mild (FVIII 5-40%) disease show a much-reduced propensity to bleed. The standard of care for adults with severe hemophilia A is a prophylactic regimen of replacement Factor VIII infusions administered intravenously up to two to three times per week or 100 to 150 infusions per year. Despite these regimens, many people continue to experience breakthrough bleeds, resulting in progressive and debilitating joint damage, which can have a major impact on their quality of life.

Hemophilia A, also called Factor VIII deficiency or classic hemophilia, is an X-linked genetic disorder caused by missing or defective Factor VIII, a clotting protein. Although it is passed down from parents to children, about 1/3 of cases are caused by a spontaneous mutation, a new mutation that was not inherited. Approximately 1 in 10,000 people have Hemophilia A.

About BioMarin

BioMarin is a global biotechnology company that develops and commercializes innovative therapies for serious and life-threatening rare and ultra-rare genetic diseases. The Company's portfolio consists of six commercialized products and multiple clinical and pre-clinical product candidates. For additional information, please visit www.biomarin.com. Information on BioMarin's website is not incorporated by reference into this press release.

Forward-Looking Statements

This press release contains forward-looking statements about the business prospects of BioMarin Pharmaceutical Inc. (BioMarin), including without limitation, statements about (i) the development of BioMarin's valoctocogene roxaparvovec program generally, (ii) the anticipated timing of a CHMP opinion in the first half of 2022, (iii) BioMarin's intention to submit to the U.S. Food and Drug Administration (FDA) two-year follow-up safety and

efficacy data on all study participants from the GENEr8-1 study to support the benefit/risk assessment of valoctocogene roxaparvovec, (iv) BioMarin targeting resubmission of a Biologics License Application in the second quarter of 2022 assuming favorable study results, followed by an expected six-month review procedure by the FDA, and (v) the timing of the regulatory activities in the U.S and Europe, including validation and timing of potential approvals and the expected review procedures. These forward-looking statements are predictions and involve risks and uncertainties such that actual results may differ materially from these statements. These risks and uncertainties include, among others: results and timing of current and planned preclinical studies and clinical trials of valoctocogene roxaparvovec; additional data from the continuation of the Phase 1/2 trial and the Phase 3 trial, any potential adverse events observed in the continuing monitoring of the participants in the clinical trials; the content and timing of decisions by the FDA, the European Commission and other regulatory authorities; the content and timing of decisions by local and central ethics committees regarding the clinical trials; our ability to successfully manufacture valoctocogene roxaparvovec for the clinical trials and commercially, if approved; and those other risks detailed from time to time under the caption "Risk Factors" and elsewhere in BioMarin's Securities and Exchange Commission (SEC) filings, including BioMarin's Quarterly Report on Form 10-Q for the quarter ended March 31, 2021, and future filings and reports by BioMarin. BioMarin undertakes no duty or obligation to update any forward-looking statements contained in this press release as a result of new information, future events or changes in its expectations.

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